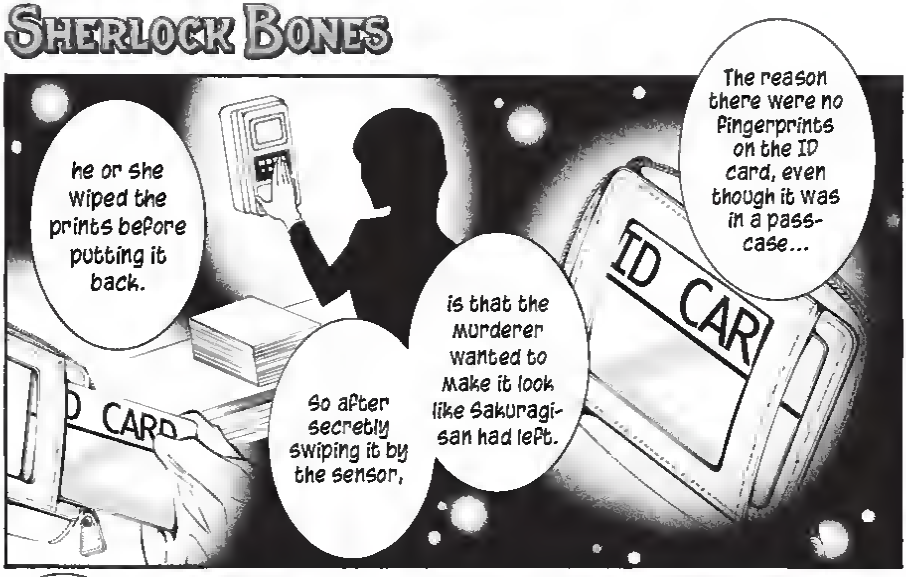
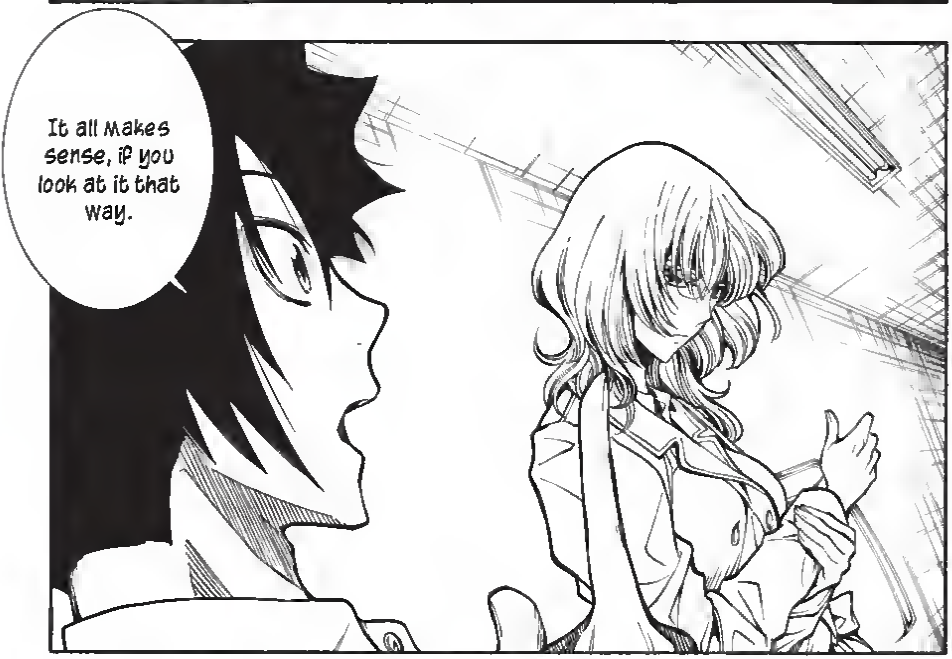
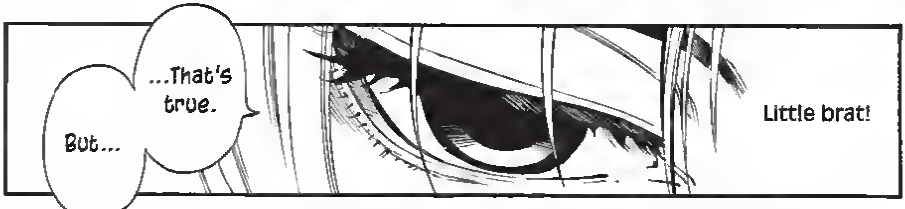

The reason there were no fingerprints on the ID card, even though it was in a pass-case...
ID CARD
he or she wiped the prints before putting it back.
So after secretly swiping it by the sensor,
is that the murderer wanted to make it look like Sakuragi-san had left.

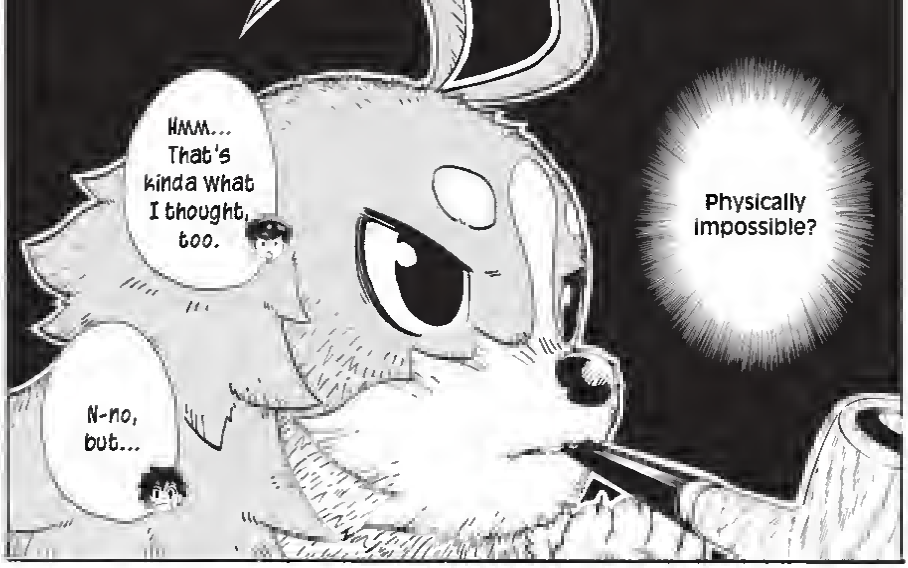


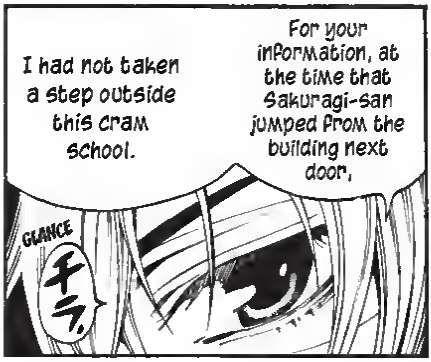


Case 4: ⚜ An Equation for Murder, Part 3

...!
RUMMAGE RUMMAGE
Have you considered this?
Huh?
had a habit of holding her cards like this.
In that case, she wouldn't leave fingerprints on it.
...It's possible that Sakuragi-san...
Huh?
I still haven't asked you the most important detail.
...Oh yes.
...
W...Well... that's possible, too, but...

A few minutes ago,
You said that Sakuragi-san might have been pushed off of this building.
But how far away did she fall from here?
AHEM.
コホン
The exact distance...
Is 10 meters, 30 centimeters.
Uh, well, because...
Wouldn't it be faster for you to go to the next building and find witnesses there?
According to the laws of physics...
PERK
ピク
that's just impossible!
Why would you ever think that she fell from this building?
She was more than ten meters away?

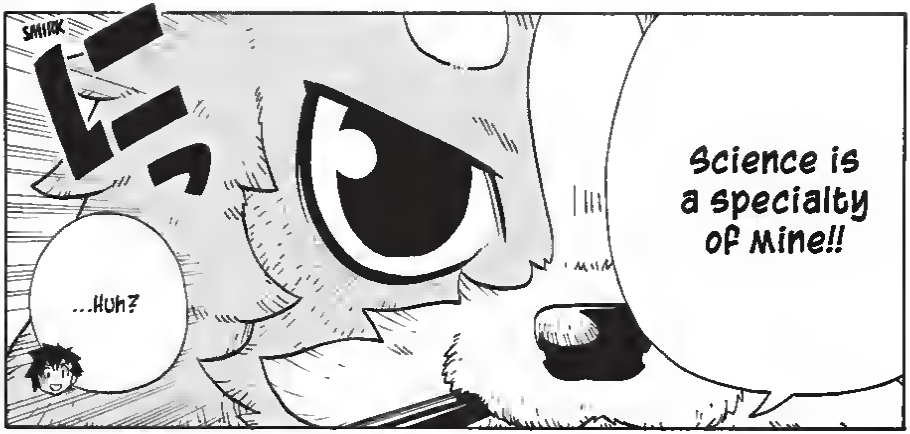

Hmm... That's kinda what I thought, too.
Physically impossible?
N-no, but...

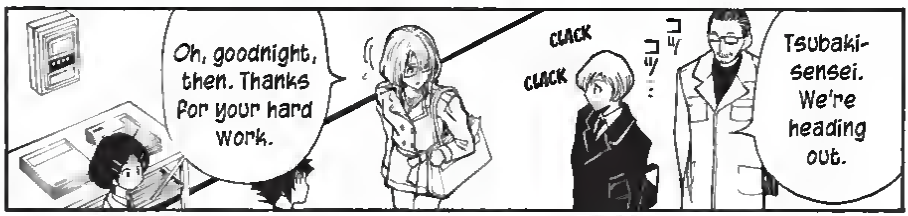

I had not taken a step outside this cram school.
For your information, at the time that Sakuragi-san jumped from the building next door,
GLANCE
チラ

Huh? N... no, of course not. Ha ha ha...
You still have your doubts?
Don't tell me you think I did it, Wajima-kun?

...Don't worry, Watson.
Y...yes, ma'am...

So I think that they would have remembered if I left.
We have security guards at the front and back exits.
They say goodbye to all the teachers.

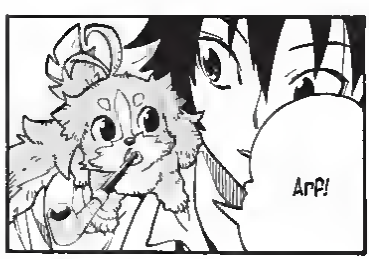

SMIRK
...Huh?
Science is a specialty of Mine!!


Oh, goodnight, then. Thanks for your hard work.
CLACK
CLACK
Tsubaki-sensei. We're heading out.

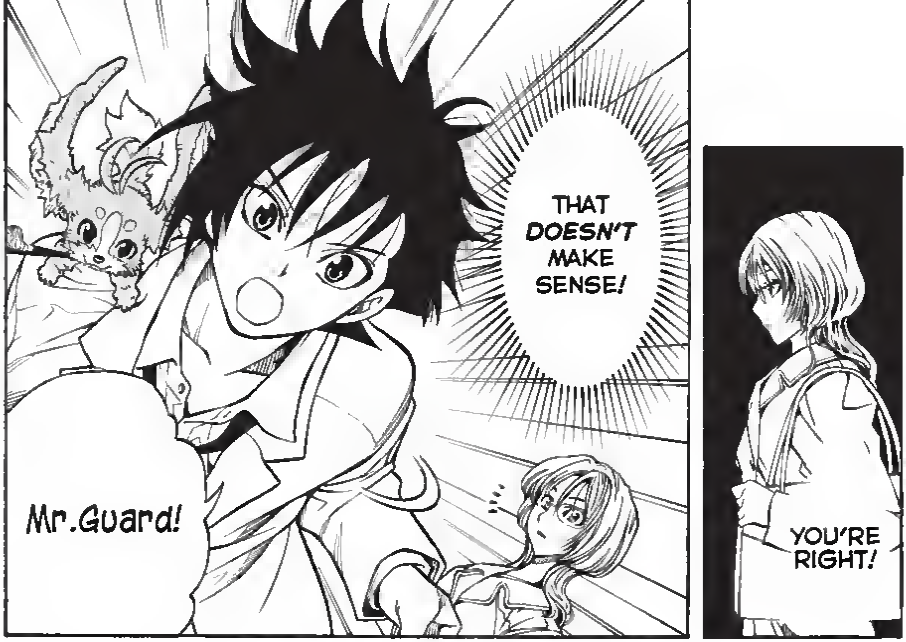
You two had better go home, too. Your parents will worry if you're out too late.
TMP
Y...yes, Ma'am.

ID CARD
BEEP

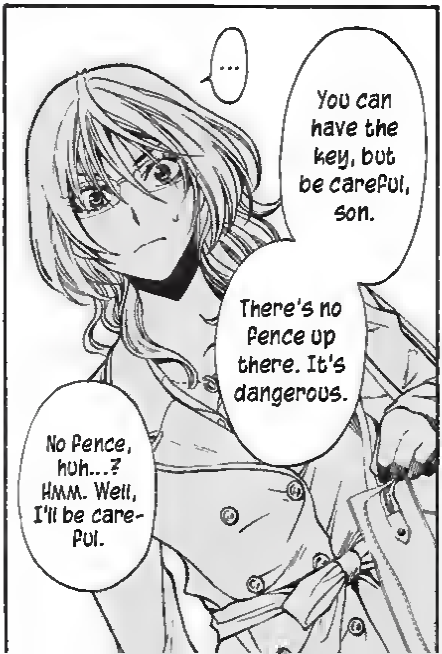
...

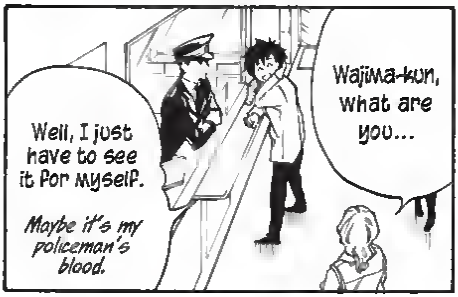

Arf!

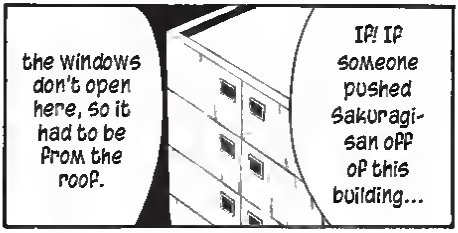
...
I still have some work to do...
What about you, Sensei?


Mr.Guard!
THAT DOESN'T MAKE SENSE!
YOU'RE RIGHT!

?!
Could I borrow the key to the roof?


...
You can have the key, but be careful, son.
There's no fence up there. It's dangerous.
No fence, huh...? Hmm. Well, I'll be careful.


Wajima-kun, what are you...
Well, I just have to see it for myself.
Maybe it's my policeman's blood.


If! If someone pushed Sakuragi-san off of this building...
the windows don't open here, so it had to be from the roof.

Have you checked this key out recently?
Tsubaki-sensei...
Oh! Right.
...!
GH
Root
It's not safe up there in the dark.
Anyway, I'll be going with you.
... Right.
I wanted to look at the stars, to get ready for my middle school science class.
...Yes, about a week ago...
...
HUMM
WWW
1
2
3
4
5

チーン
DING
She would have needed...
The question is, how did she use it for her crime?
I've come up with a numerical formula.
...
!
PERK
...something to help her.
HEE HEE HEE...
ミミミ...
What's up, Sherdog?
There!
CLICK

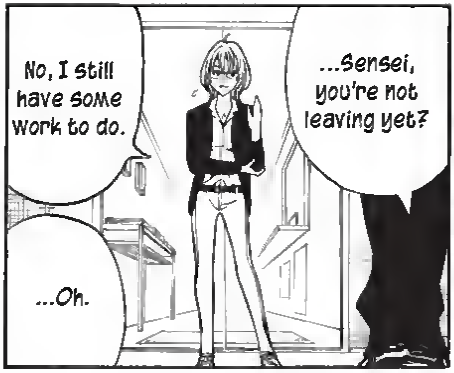
Okay.
You, too, Miki. I don't want anything to happen to you.
Oh.
Will you wait here, Sensei?
Wajima-kun. It's pitch black out there—it's dangerous. So let's finish this as quickly as possible...
Let's go, Sherdog!
TMP
Arf!
Grr...
What is he up to...?
Well, Sher-dog?
...
This kind of behavior will only have a negative impact your grades!!
Haven't you had enough? It's about time you went home!!
SNIFF
SNIFF
SNIFF
...
TAP
TAP
TAP

...Okay.

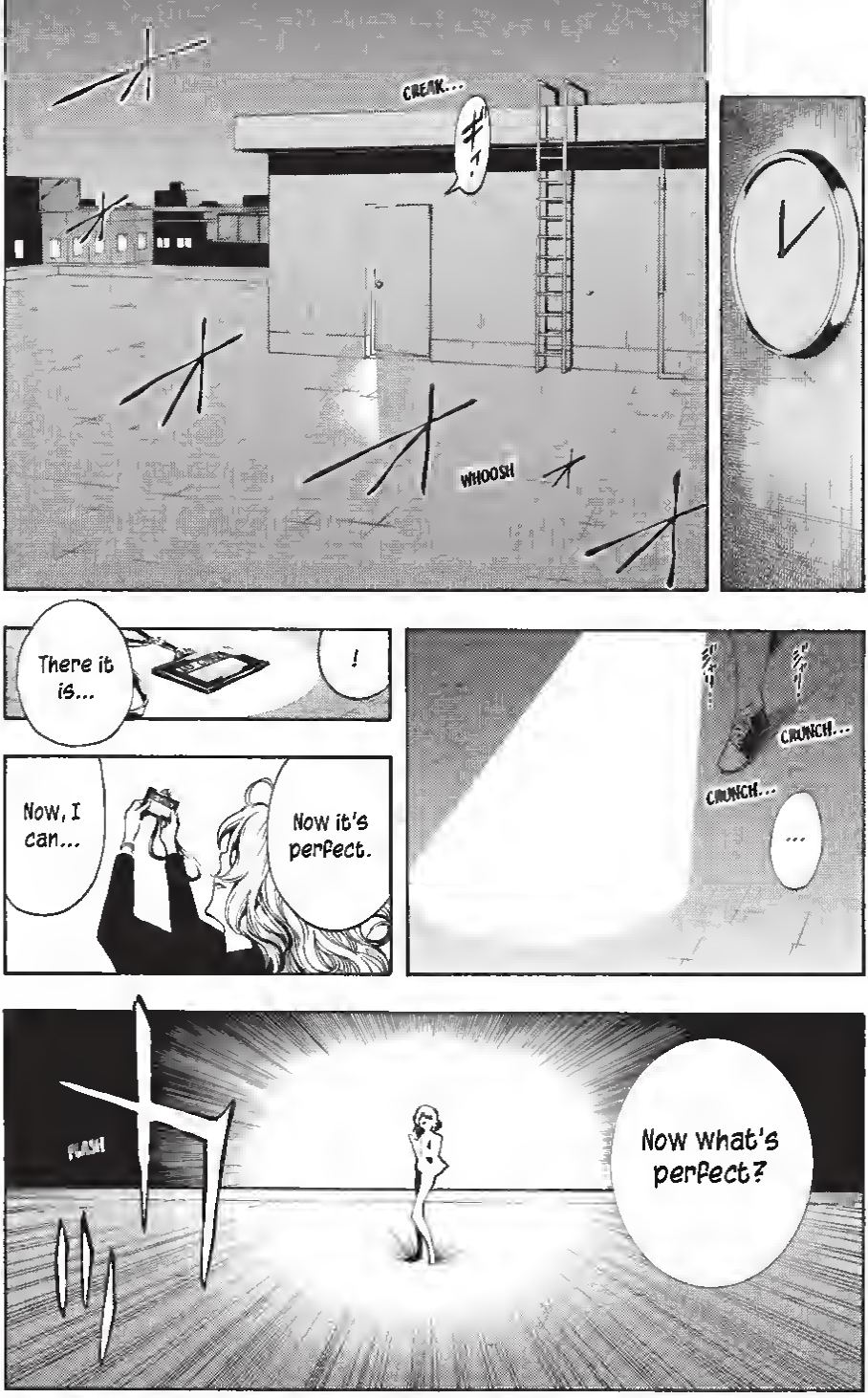
ARF!
I know how she did it!!
Go get her, Watson!!

Well, see you.

...
WHEW
Ttt


No, I still have some work to do.
...Oh.
...Sensei, you're not leaving yet?

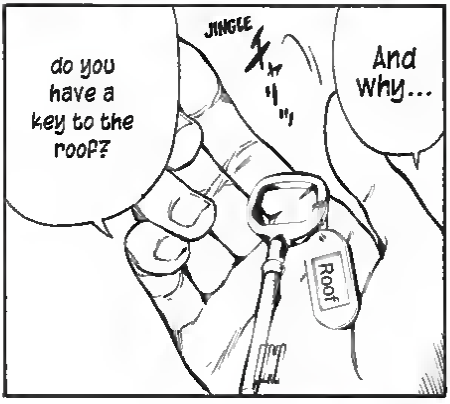
Well, goodbye, Sensei.
Yes, take care.


CREAK...
WHOOSH
There it is...
!
Now, I can...
Now it's perfect.
CRUNCH...
CRUNCH...
...
FLASH
Now what's perfect?

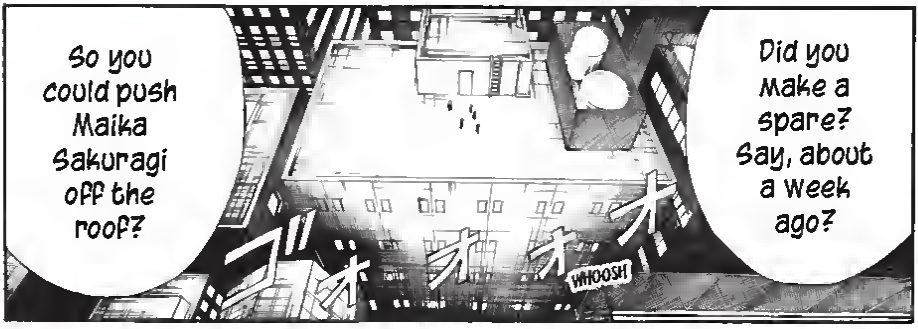
Wajima-kun...
Wa...

Takeru.
ID CARD
It's an ID card, just like you said.

...
Ss...
I'm Takeru's sister, Airin Wajima. I'm an inspector in the Violent Crimes division.
May I see that?


JINGLE
And Why...
do you have a key to the roof?
Roof

Tsubaki-sensei.
Why would your ID card be up here?


So you could push Maika Sakuragi off the roof?
Did you make a spare? Say, about a week ago?
WHOOSH!

...
We learned about it in class earlier...
It's possible.
Sakuragi-san fell more than ten meters away.
But how?
WINCE
Horizontal trajectories.
!
then we need to determine what initial horizontal velocity
Note: The weight of M has no bearing on its downward velocity
If we make Sakuragi-san's body mass M,
Vo
M
28m
10m
would be necessary to move M 10 meters horizontally before it hits the ground.
So if each floor is 3.5 meters high,
This is an eight-story building.
28m
then the whole building would by 3.5M times 8. That's 28 meters.

Vot=10
where t=2.4

The horizontal velocity needed to move 10 meters in 2.4 seconds

Vo=10/2.4
=25/6 m/s

(meters per second)

It's approximately 4.2 meters per second.

First,

We have to find the time t it would take for gravity to carry the mass to the ground.

So we plug it into this formula and calculate for t...

Vertical (Downward) Motion: Free Fall

$1/2 \times 9.8 \times t^2 = 28$

acceleration due to gravity

vertical displacement

t=2.4

It would be about 2.4 seconds.

You don't even have to go that fast, if you give her a good strong push at the end.

If you can run 50 meters in 12 seconds, then that's how fast you'd be running.

In other words, if you push Sakuragi-san at a velocity of 4.2m/s, then she'll land 10 meters away.

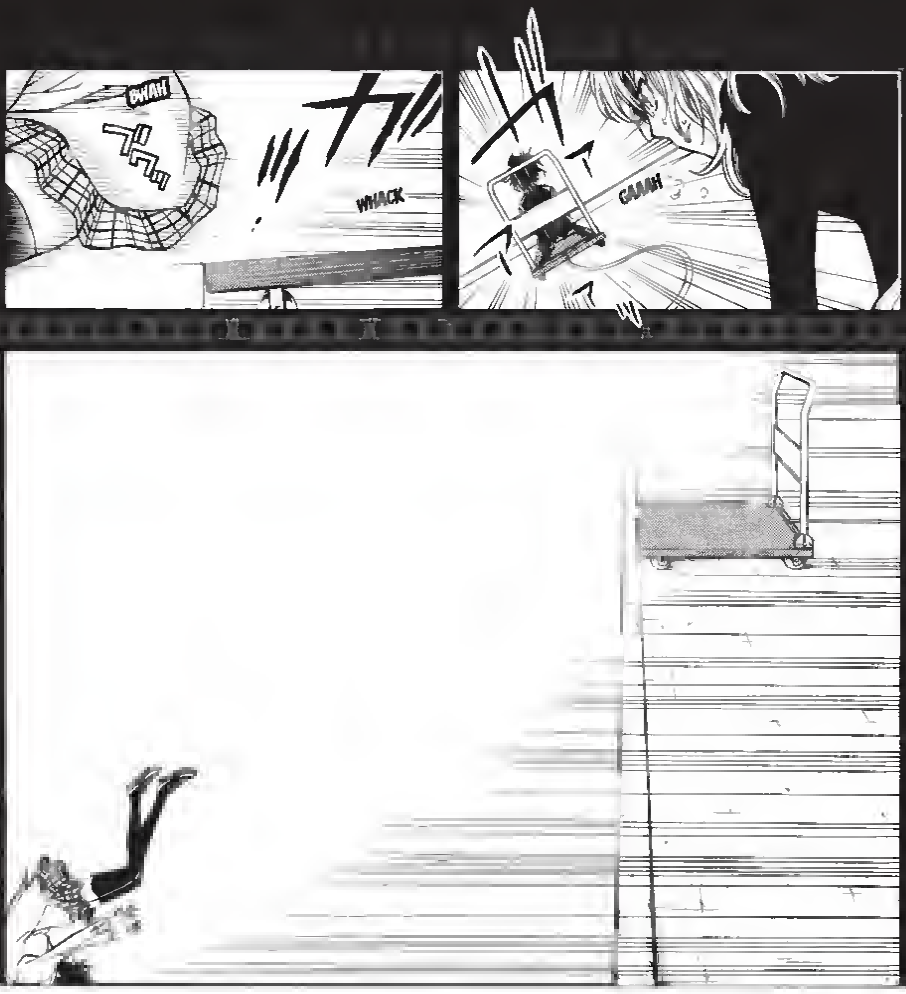
...

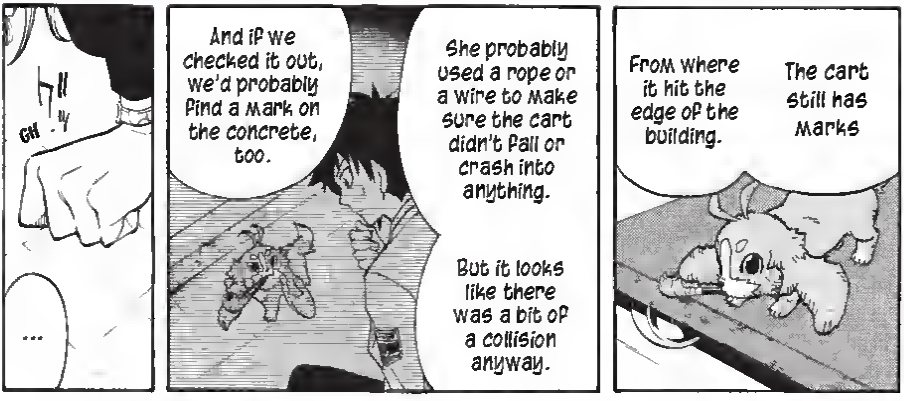
But it most definitely is physically possible.

For the body to fall 10 meters away.

At first glance, it seems impossible.

She'd use that cart.
She wouldn't need to carry her.
If she's carrying another person?
But could she run that fast?
And put her on this cart.
All she had to do was knock Sakuragi-san out,
DASH
Then start at that edge of the roof,
And run as fast as she can.

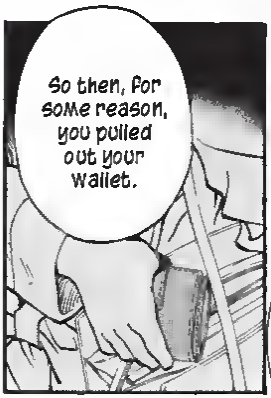

CHAH!
WHACK
GAAH

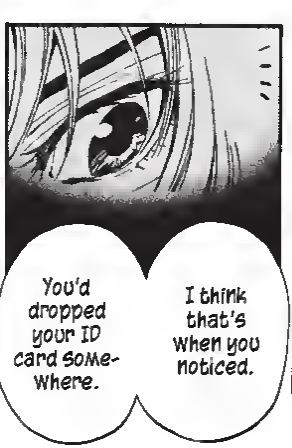

OH
...
And if we checked it out, we'd probably find a mark on the concrete, too.
She probably used a rope or a wire to make sure the cart didn't fall or crash into anything.
But it looks like there was a bit of a collision anyway.
From where it hit the edge of the building.
The cart still has marks

...If only you could do such brilliant calculations on your tests, Wajima-kun.
HEH...
How did you know I would come up here to get my ID card?

...I see.

...
Well, you came all the way to the entrance like you were ready to go home.
But then you said you still had work and went back to your office.


So then, for some reason, you pulled out your wallet.

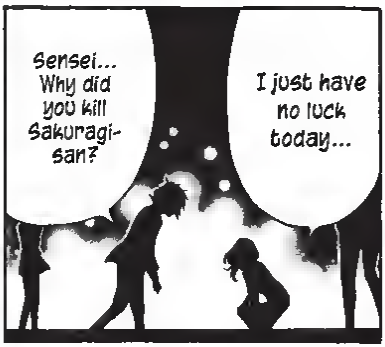

I think that's when you noticed.
You'd dropped your ID card some-where.

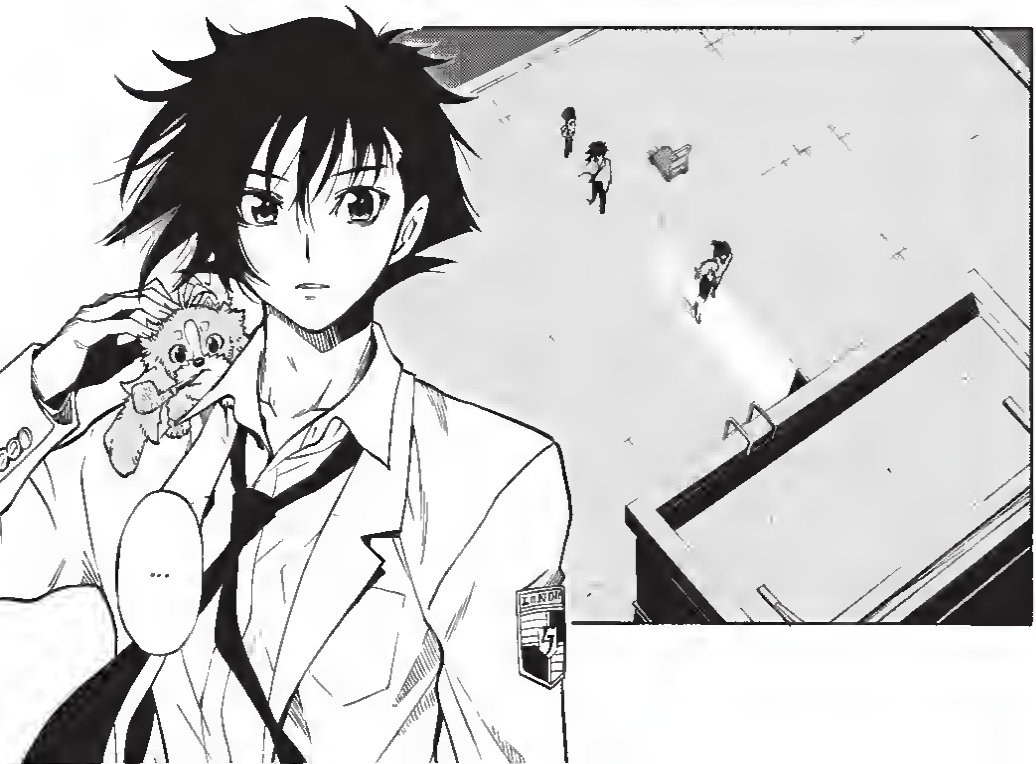
And when we were talking about fingerprints on the card,
You were looking through your bag for something to show me.
SS

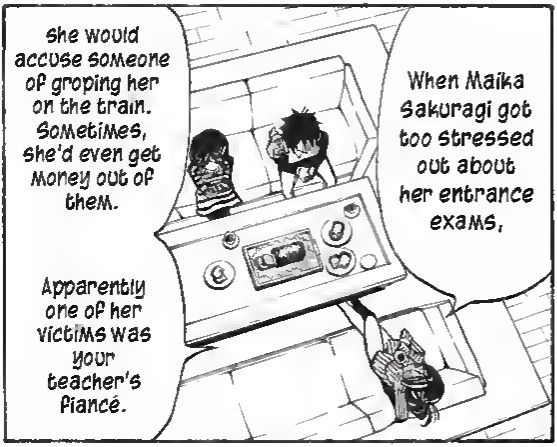
That didn't seem natural to me.
And used a different card instead.
nuica
nuica

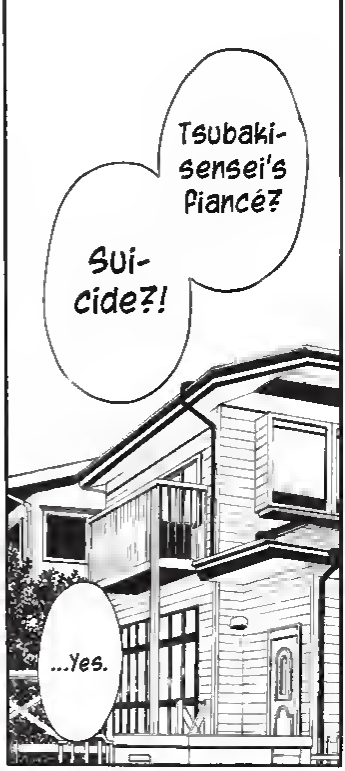
Inspector.
Let's go.
WHIR

...

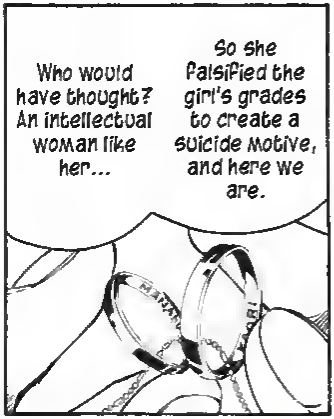

Sensei... Why did you kill Sakuragi-san?
I just have no luck today...


...


When Maika Sakuragi got too stressed out about her entrance exams,
she would accuse someone of groping her on the train. Sometimes, she'd even get money out of them.
Apparently one of her victims was your teacher's fiancé.


Tsubaki-sensei's fiancé?
Sui-cide?!
...Yes.

About her accusing a businessman and driving him to suicide.
...So the rumor was true.


Who would have thought? An intellectual woman like her...
So she falsified the girl's grades to create a suicide motive, and here we are.

He was a hardworking banker...but...
Your teacher must have heard the name Sakuragi over the phone before he killed himself.
They interrogated him all night long, and he was forced to report himself to his company...

didn't want to tell us why she did it?
Thank you.
I'll help!
Why do you think Tsubaki-sensei
...Hey, Sherdog.

And that's how she dug her own grave.
She kept making excuses when she should have stayed quiet.
...So most likely,
He who excuses himself accuses himself.
It's a British proverb, meaning that if you try too hard to make excuses, you'll only turn suspicion on yourself.
She didn't want to make any more excuses.

This is a job for the school paper, Takeru!